

AMENDMENTS TO THE CLAIMS

1. (Currently Amended) An improved antisense oligonucleotide between 6 and about 50 bases in length, wherein the improvement comprises substitution of one or more naturally occurring backbone linkage with a non-naturally occurring backbone linkage and substitution of one or more base with a non-naturally occurring base selected from the group consisting of degenerate base, 5-nitroindole, 3-nitropyrrole, 4-nitrobenzimidazole, and nebularine, wherein said antisense oligonucleotide is able to hybridize to two or more RNA molecules that differ in sequence by one or more single nucleotide polymorphism mismatch in the target regions that hybridize to said antisense oligonucleotide, and wherein one or more non-naturally occurring base is positioned in said antisense oligonucleotide to align with a single nucleotide polymorphism mismatch position in the target regions of the RNA molecules.

2. (Original) The antisense oligonucleotide of Claim 1, wherein no more than about 50% of said bases are universal and/or degenerate bases.

3. (Currently Amended) An improved antisense oligonucleotide having a RNA targeting region, wherein the improvement comprises a RNase recruiting region, wherein one or more base of said antisense oligonucleotide is a non-naturally occurring base selected from the group consisting of a degenerate base, 5-nitroindole, 3-nitropyrrole, 4-nitrobenzimidazole, and nebularine, and wherein said antisense oligonucleotide is able to hybridize to two or more RNA molecules that differ in sequence by one or more single nucleotide polymorphism mismatch in the target regions that hybridize to said antisense oligonucleotide, and wherein one or more non-naturally occurring base is positioned in said antisense oligonucleotide to align with a single nucleotide polymorphism mismatch position in the target regions of the RNA molecules.

4. (Original) The antisense oligonucleotide of Claim 3, wherein no more than about 50% of said bases are universal and/or degenerate bases.

5. (Currently Amended) An improved antisense oligonucleotide having an RNA targeting region, wherein the improvement comprises a RNase H recruiting region, wherein the RNA targeting region of said antisense oligonucleotide comprises one or more non-naturally occurring base selected from the group consisting of degenerate base, 5-nitroindole, 3-

nitropyrrole, 4-nitrobenzimidazole, and nebularine, and wherein said antisense oligonucleotide is able to hybridize to two or more RNA molecules that differ in sequence by one or more single nucleotide polymorphism mismatch in the target regions that hybridize to said antisense oligonucleotide, and wherein one or more non-naturally occurring base is positioned in said antisense oligonucleotide to align with a single nucleotide polymorphism mismatch position in the target regions of the RNA molecules.

6. (Previously Presented) The antisense oligonucleotide of Claim 5, wherein the RNA targeting region comprises no more than about 50% universal and/or degenerate bases.

7. (Currently Amended) An antisense oligonucleotide comprising an RNA targeting region and a RNase L-recruiting region comprising a 2'-5' adenosine oligomer, wherein the RNA targeting region of said antisense oligonucleotide comprises one or more non-naturally occurring base selected from the group consisting of degenerate base, 5-nitroindole, 3-nitropyrrole, 4-nitrobenzimidazole, and nebularine, and wherein said antisense oligonucleotide is able to hybridize to two or more RNA molecules that differ in sequence by one or more single nucleotide polymorphism mismatch in the target regions that hybridize to said antisense oligonucleotide, and wherein one or more non-naturally occurring base is positioned in said antisense oligonucleotide to align with a single nucleotide polymorphism mismatch position in the target regions of the RNA molecules.

8. (Original) The antisense oligonucleotide of Claim 7, wherein said RNA targeting region comprises no more than about 50% universal and/or degenerate bases.

9. (Currently Amended) An antisense oligonucleotide comprising an RNA targeting region and a RNase P recruiting region, wherein the RNA targeting region of said antisense oligonucleotide comprises one or more non-naturally occurring base selected from the group consisting of degenerate base, 5-nitroindole, 3-nitropyrrole, 4-nitrobenzimidazole, and nebularine, and wherein said antisense oligonucleotide is able to hybridize to two or more RNA molecules that differ in sequence by one or more single nucleotide polymorphism mismatch in the target regions that hybridize to said antisense oligonucleotide, and wherein one or more non-naturally occurring base is positioned in said antisense oligonucleotide to align with a single nucleotide polymorphism mismatch position in the target regions of the RNA molecules.

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10. (Original) The antisense oligonucleotide of Claim 9, wherein said RNA targeting region comprises no more than about 50% universal and/or degenerate bases.

11. (Currently Amended) A ribozyme comprising an RNA targeting region, which comprises one or more non-naturally occurring base selected from the group consisting of degenerate base, 5-nitroindole, 3-nitropyrrole, 4-nitrobenzimidazole, and nebularine, wherein said ribozyme is able to hybridize to two or more RNA molecules that differ in sequence by one or more single nucleotide polymorphism mismatch in the target regions that hybridize to said ribozyme, and wherein one or more non-naturally occurring base is positioned in said ribozyme to align with a single nucleotide polymorphism mismatch position in the target regions of the RNA molecules.

12. (Original) The ribozyme of Claim 11, wherein said RNA targeting region comprises no more than about 50% universal and/or degenerate bases.

13. -20. (Canceled)

21. (Currently Amended) The antisense oligonucleotide of claim 20 ~~wherein said sequence motif is a~~ 1, wherein said antisense oligonucleotide comprises one or more CG dinucleotide sequence motif with one or more degenerate and/or universal base.

22. (Currently Amended) The antisense oligonucleotide of claim 20 ~~wherein said sequence motif is a~~ 1, wherein said antisense oligonucleotide comprises one or more poly -G sequence sequence motif with one or more degenerate and/or universal base.

23. (Currently Amended) The antisense oligonucleotide of claim 1 further comprising a universal base positioned on said antisense oligonucleotide to align with a single nucleotide polymorphism mismatch of the RNA target region.

24. (Currently Amended) The antisense oligonucleotide of claim 3 further comprising any universal base positioned on said antisense oligonucleotide to align with a single nucleotide polymorphism mismatch of the RNA target region.

25. (Currently Amended) The antisense oligonucleotide of claim 5 further comprising a universal base positioned on said antisense oligonucleotide to align with a single nucleotide polymorphism mismatch of the RNA target region.

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26. (Currently Amended) The antisense oligonucleotide of claim 7 further comprising a universal base positioned on said antisense oligonucleotide to align with a single nucleotide polymorphism mismatch of the RNA target region.

27. (Currently Amended) The antisense oligonucleotide of claim 9 further comprising a universal base positioned on said antisense oligonucleotide to align with a single nucleotide polymorphism mismatch of the RNA target region.

28. (Currently Amended) The ribozyme of claim 11 further comprising a universal base positioned on said ribozyme to align with a single nucleotide polymorphism mismatch of the RNA target region.

29. (Currently Amended) The antisense oligonucleotide of claim 1 further comprising an inosine base positioned on said antisense oligonucleotide to align with a single nucleotide polymorphism mismatch of the RNA target region.

30. (Currently Amended) The antisense oligonucleotide of claim 3 further comprising an inosine base positioned on said antisense oligonucleotide to align with a single nucleotide polymorphism mismatch of the RNA target region.

31. (Currently Amended) The antisense oligonucleotide of claim 5 further comprising an inosine base positioned on said antisense oligonucleotide to align with a single nucleotide polymorphism mismatch of the RNA target region.

32. (Currently Amended) The antisense oligonucleotide of claim 7 further comprising an inosine base positioned on said antisense oligonucleotide to align with a single nucleotide polymorphism mismatch of the RNA target region.

33. (Currently Amended) The antisense oligonucleotide of claim 9 further comprising an inosine base positioned on said antisense oligonucleotide to align with a single nucleotide polymorphism mismatch of the RNA target region.

34. (Currently Amended) The ribozyme of claim 11 further comprising an inosine base positioned on said ribozyme to align with a single nucleotide polymorphism mismatch of the RNA target region.

35. (Currently Amended) ~~In an~~ An improved oligonucleotide with antisense activity, wherein the improvement comprises substitution of one or more naturally occurring backbone

linkage with a non-naturally occurring backbone linkage and substitution of one or more base with a non-naturally occurring base selected from the group consisting of degenerate base, 5-nitroindole, 3-nitropyrrole, 4-nitrobenzimidazole, and nebularine.

36. (Previously Presented) The antisense oligonucleotide of claim 35, wherein said antisense oligonucleotide is able to hybridize to two or more mRNA molecules that differ in sequence by one or more nucleotide mismatch in the target regions that hybridize to said antisense oligonucleotide, and wherein one or more non-naturally occurring base is positioned in said antisense oligonucleotide to align with a nucleotide mismatch position in the target regions of the RNA molecules.

37. (New) The improved antisense oligonucleotide of claim 1, wherein said RNA molecules encode a human oncogene.

38. (New) The improved antisense oligonucleotide of claim 37, wherein said human oncogene is selected from the group consisting of Bcl-2, Bcl-2a, Bcl-2b, Bcl-2c, Bcl-xl, protein kinase C α , protein kinase C θ , and protein kinase C δ .

39. (New) The improved antisense oligonucleotide of claim 3, wherein said RNA molecules encode a human oncogene.

40. (New) The improved antisense oligonucleotide of claim 39, wherein said human oncogene is selected from the group consisting of Bcl-2, Bcl-2a, Bcl-2b, Bcl-2c, Bcl-xl, protein kinase C α , protein kinase C θ , and protein kinase C δ .

41. (New) The improved antisense oligonucleotide of claim 5, wherein said RNA molecules encode a human oncogene.

42. (New) The improved antisense oligonucleotide of claim 41, wherein said human oncogene is selected from the group consisting of Bcl-2, Bcl-2a, Bcl-2b, Bcl-2c, Bcl-xl, protein kinase C α , protein kinase C θ , and protein kinase C δ .

43. (New) The antisense oligonucleotide of claim 7, wherein said RNA molecules encode a human oncogene.

44. (New) The antisense oligonucleotide of claim 43, wherein said human oncogene is selected from the group consisting of Bcl-2, Bcl-2a, Bcl-2b, Bcl-2c, Bcl-xl, protein kinase C α , protein kinase C θ , and protein kinase C δ .

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45. (New) The antisense oligonucleotide of claim 9, wherein said RNA molecules encode a human oncogene.

46. (New) The antisense oligonucleotide of claim 37, wherein said human oncogene is selected from the group consisting of Bcl-2, Bcl-2a, Bcl-2b, Bcl-2c, Bcl-xl, protein kinase C α , protein kinase C θ , and protein kinase C δ .

47. (New) The ribozyme of claim 11, wherein said RNA molecules encode a human oncogene.

48. (New) The ribozyme of claim 47, wherein said human oncogene is selected from the group consisting of Bcl-2, Bcl-2a, Bcl-2b, Bcl-2c, Bcl-xl, protein kinase C α , protein kinase C θ , and protein kinase C δ .